POULTRY DISEASES

Their Causes, Symptoms, Treatment and Cure

With Notes on
Breeding, Feeding and Housing

PRICE. 50 CENTS

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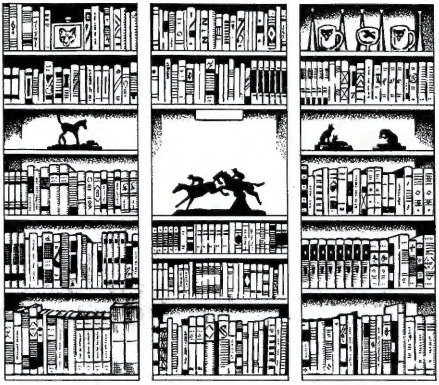

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JOHN AND MARTHA DANIELS

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THEIR CAUSES,

SYMPTOMS, TREATMENT

AND CURE

With Notes on Breeding, Feeding and Housing

F. R. GLOVER
Author and Proprietor

INTRODUCTION

In offering this book to the poultry public I do so with the full knowledge that there are several books of the kind on the market and they no doubt have merit. However I have made a careful study of Poultry Disease and their treatment and cure for a number of years and I believe that I am as well informed on these subjects as any man in this country. For this reason I am offering you this book, which contains the result of my study along these lines and I believe that you will find it a valuable book of reference in time of need.

Breeding, Feeding and Housing

A chapter of this kind may seem out of place in a book on Poultry Diseases but the writer believes that a fowl well bred and properly fed and housed is pretty well insured against disease.

O. W. Holmes says, "A child's education should begin 100 years before it is born." Working along this line we find that the health and strength of a fowl must be considered at least one year before it is hatched. In other words, you lay the foundation for strong, hardy young stock, or sickly, runty young stock, when you mate up your brood stock.

Allowing that your stock have the points of color, form, weight, etc., for which you are striving, the next essential to make them high class brood stock is that they be healthy, vigorous fowl. Both cock and hens must be hardy stock, well matured and in a high state of health, to secure best results. Young pullets or hens that have been stunted or debilitated, by neglect, abuse or disease, do not lay eggs containing strong, healthy germs, no matter how good the blood, and, if used, they will throw you inferior, sickly, runty stock.

I will not endeavor to tell you how to select your fowl for points, as you no doubt know your particular strain better than I. I will say, however, that it is best to select fowl of an active disposition as active hens are more likely to be good layers, and an active male will give you a better percentage of fertile eggs.

Opinions differ greatly as to the number of hens to breed with a male. For yarded fowl, I believe that six to ten hens is the proper number. Much depends on the activeness and vitality of the male, also the size of the strain you are breeding. The small breeds may be bred in larger flocks than the large fowl, with good results. On free range, an active, vigorous male will care for from twelve to twenty hens.

In mating, breed a cockerel to hens and a cock to hens or pullets but never a cockerel to pullets if you are looking for stamina in the offspring.

The Brood Coop

The size and style of your brood coop will depend much on the size of your flock and the locality in which you live. You should have at least ten square feet of floor space for each

fowl and they should have all the range possible. Nothing equals free range but, if you must yard your fowl, allow at least 100 square feet of vard to a fowl.

The open front type of poultry house seems to be the most sanitary and the healthiest house possible. The opening should always be toward the South and, in cold climates, should be covered with a cloth curtain to keep out the snow.

Dry soil is very essential around a brood house. For this reason you should build on a rise of ground if possible and the shed style of roof gives you dryer ground in front of the house than a gable roof as the rain all runs off at the back. Whatever the size or style of your brood house see that it is always clean, dry and well ventilated, not by cracks and holes but by a system that gives your fowl plenty of fresh air, with no draughs. Sanitary conditions help to keep your fowl healthy and vigorous and fit to produce their like.

The Egg

Even after you have a brood yard of high class and have them properly housed, if you wish to produce fertile eggs, that will throw you strong, vigorous stock, you must give close attention to your fowl's diet.

Eggs are made from what we call surplus food, that is, food that is not needed to sustain the body. Therefore a laying hen must have a liberal diet. This died must contain the elements of the egg, fat, mineral matter and albumen. The grains, especially corn, buckwheat, wheat and barley and many of the vegetables, particularly potatoes, contain the necessary fats. All of the grains contain mineral matter sufficient for a non-laying hen but a laying hen should be supplied with oyster shells at all times. 14% of the 26% of solids in an egg are albumen. None of the grains supply albumen in sufficient quantities for consistent egg production. It is therefore necessary to supply the hen with other foods which are rich in albumen. Meat scraps, milk and green bone are all excellent and meat meal is the richest in albumen of any of the commercial foods. Of course hens on free range, during the warm months, will supply this class of food as bugs, worms and the like fill the bill but it is during the Winter and with yarded hens that we must supply the deficiency.

Grit, Oyster Shells and pure water should be before your fowl at all times and they should be supplied liberally with green foods. Cabbage, turnips, apples and sprouted oats are excellent.

If you have healthy, vigorous stock and pay close attention to furnishing them with the proper diet, you are pretty sure of eggs with strong, vigorous germs.

Hatching

I will assums that you are to use hens for hatching. If you use an incubator, you will find your nest ready made and you will not have to feed or water. The manufacturer will furnish full instructions for running his machine for best results. In using hens use medium sized ones, and never use a wild hen.

Use a good sized nest to allow hen to move about freely. Fill one-half full of new earth making the bottom of the nest flat so that eggs will not pile up in the center. Cover with soft hay or straw making nest slightly higher at the outside, to keep eggs from rolling out. If the eggs are fouled in any manner, they should be washed in warm water and replaced under hen at once. Feed hen corn and give fresh water daily.

In selecting eggs for hatching always select medium sized eggs with smooth, even shells.

Chicks With Hens

Take chicks from the nest as they hatch, to

avoid crushing, and remove all empty shells, but hens that are later to have broods should not have all chicks removed and, if they are of various colors, leave at least one of each color to avoid later trouble.

Mark the chicks as you remove them from the nest. This will avoid mistakes and guess work later and guess work must be avoided if we wish to attain success.

Do not feed the chicks for 24 to 48 hours after hatching. When all are out, if the weather is mild, place them with their mother in the coop which is to be their home for a few weeks. In case the weather is cold the chicks should be kept indoors for a few days and afterwards their coop should be placed in an open shed if possible. Always set coop on an elevation to provide a dry floor even during rainy weather. Any good, roomy coop, that has a good roof and three tight sides, with sufficient light for the hen, is O. K. A coop 2 by 3 feet is large enough. It should have no bottom but must be on dry ground. Set coops facing South and well apart, to avoid vicious hens killing strange chicks, and move every day, either forward or sidewise, so as not to feed chicks on fouled ground. Scald water vessels every few days to keep them sweet and clean.

A good first feed for young chicks is a little bread soaked in sweet milk and squeezed dry, or probably the best of all is a little hard boiled egg. There are many successful methods of chick feeding. Thousands of young chicks are raised every year on corn meal mash and, while I much prefer dry grain feeding, I know of many successful poultrymen who feed wet mashes. The danger of wet mash feeding is in the manner of feeding. Never feed sloppy feed and see that both feed and feed dishes are always sweet and clean. If you allow moulds to develop or food to become sour you are sure of trouble and plenty of it.

I believe that the best method of feeding is to use one of the commercial chick feeds until chicks are large enough to eat whole wheat and cracked corn. On free range the best plan is to have food where young stock can get it at any time they wish.

For cooped chicks, and I regret very much if you must coop your young stock, regular feeding times should be had and you should be very careful not to feed more than they will eat up clean as it is liable to sour; even whole grains sour quickly if they become wet.

Give chick grit to all sizes of chicks and see that they have free access to charcoal. This is neither a grit or food but it is a great puri-

fier and will assist your fowl to be healthy and vigorous. You should also supply yarded chicks with moderate amounts of fresh ground meat and green bone.

As your chicks outgrow the coop and become independent of the hen, they should be provided with a good place to roost at night . An open shed facing the South is a fine thing for young stock. On wet days it makes a good place for them to scratch for their grain ration and at night it makes a far better roosting place than a tree. Too many men are prone to allow their young stock to roost out in trees and on fences and, when the cold, Fall rains come, they develop colds that run into roup and in this way the seed is sowed for sickly stock all Winter, unless proper methods are taken to overcome the trouble and, as prevention is better than cure, so proper care of the young stock in the Fall is better than doctoring them half the Winter.

As the season grows later it is necessary to bring in your young stock and house them for the Winter. The best plan is to separate the cockerels from the pullets and, when possible, the pullets should be separated into small flocks, the different ages by themselves, as they will do much better than where all sizes run together.

POULTRY DISEASES

THEIR CAUSES, SYMPTOMS, TREATMENT AND CURE

Bad breeding, improper housing and poor feeding are the leading causes of disease in poultry.

"Like produces like" and, if you breed immature, sickly, runty stock, you will get the same characteristics in the offspring. It is likewise true that you cannot cure diseases of the respiratory organs in a damp, dirty house, full of cracks and holes nor can you hope to cure bowel troubles if you continue to feed sloppy, sour, mouldy feeds.

There is greater danger from carelessness than from disease and, while the remedies given in this chapter are all reliable, tested remedies, yet I wish to impress it upon you that as much depends upon your care as upon the remedies. You must co-operate in order to get best results. Provide clean, dry, properly ventilated quarters and feed sound, sweet grains and vegetables, with pure water,

and the chances are that you will not have disease in your flocks but, if by chance you do have trouble, you will find the following remedies to be thoroughly reliable.

DISEASES OF THE RESPIRATORY ORGANS

Diseases of the respiratory organs are probably the most common of all poultry diseases and, while not so immediately fatal as some others, they are of a lingering type which makes fowl worthless while having the trouble and, if not properly treated, leaves them in no better condition.

Roup

Roup is a purulent catarrahal disease of the air passages the primary causes of which are exposure to wet, cold and draughs. Damp quarters and houses that are ventilated by cracks and holes in the walls are sure roup producers. After roup once starts in a flock, it quickly spreads, unless immediate steps are taken to check it.

The symptoms, in the first stages, are a watery discharge from the nostrils and an inflammation of the eyes and the mucous mem-

brane of the nostrils. Later the discharge thickens, clogging the throat, nostrils and duct to the eye and causing the eye to bulge out. In the last stages the bird becomes blind, the eye cavities being filled with a cheesy substance. In this stage the inflammation extends to the entire surface of the membranes of the nose, mouth, throat and windpipe, stagnating the nutritive processes, poisoning the blood and soon causing death. It is the pus discharge in the last stages which disseminates or spreads the disease. Feed and water vessels should be scalded every day, all diseased fowl should be removed from the flocks and pine tar, turpentine and sulphur should be burned in the poultry houses, after the fowl have been let out and all openings closed up. These are preventative precautions.

Nasal Injections for Colds and Roup

There seems to be considerable diversity of opinion in regard to the merits of nasal injections for colds, roup and affections of the membranes of the nose and air passages. In order to properly understand how these applications can be of value, it is well to first know the construction of the head of the fowl and to know how to apply the remedy in a proper manner. There are three sections or

divisions to the nostril of a fowl. The two lower ones are really sub-divisions or sub-passages which do not connect with the throat cavity direct but which join the upper passage back toward the eye. This being the case, in order to get best results from injections of this kind, it is well to see that the syringe is inserted in this upper passage. It is possible to get results by using either of the lower passages but more pressure is required from the syringe and even then the application is liable to be only partial.

This main passage connects directly with the throat through the small slit which you can see at the back of the mouth and there is also a duct leading to the eye. It is this duct that swells in cold or roup and gives the puffy appearance below the eyes.

There can be little doubt that there is great value in injections of proper remedies applied in proper manner. This is especially true in colds and light cases of roup and a proper knowledge of such treatment is invaluable as many times one application of a proper lotion will bring about an immediate cure.

One of the best simple remedies to use is crude petroleum and many times it works wonders. Another, and one of the very best

is turpentine and olive oil equal parts into which has been placed all the camphor gum that the oil will take up. A few drops of carbolic acid is also an addition. In cases where colds have developed into dry roup and rattles, these applications are a valuable assistant to some constitutional remedy for cleansing the system and bringing about a permanent cure.

A small sewing machine oiler, one with a flexible bottom, is the best instrument for applying these applications as it has the proper amount of force and is easily adjusted.

When Nasal Injections Fail

After the first stages of roup, the blood becomes poisoned and there is a necessity for a more vigorous treatment than simply a soothing lotion applied to the affected parts.

Very like diseases in the human family, where one remedy cures one case it sometimes fails in the next and another is necessary. However the following will be found to be a very reliable treatment and one which seldom fails to bring about a cure. At the first signs of roup give the bird a dose of Epsom Salts and follow this, at night for three nights, with a two grain quinine pill. Also swab out the throat with a strong solution of Chlorate of Potassium. Feed daily a warm mash into

which has been mixed a teaspoonful each of Carbonate of Iron and Sulphur to each four quarts of ground feed.

A good deal depends on the proper care of your fowl. The quarters should be kept clean and dry, with lime on dropping boards and floors. You should have good ventilation, avoiding cracks and overhead openings. Very little corn or meat food should be given. Wheat and oats are the best grain feeds for roupy fowl with plenty of green stuff and pure water. A little carbolic acid or hypo-sulphite of soda in the drinking water will many times be found of value.

Dyphtheria

Dyphtheria, or what is commonly known as Dyphtheric Roup, is a dangerous disease as it is communicable to children and, when it has gained much headway, it is safest to kill the bird.

In this disease, the head becomes hot and red from fever and the throat fills up with a thick, white mucous which forms into a membrane and white ulcers appear on the throat walls.

If the bird is of sufficient value to warrant treatment, spray the throat with Peroxide of

Hydrogen, give a dessertspoonful of Castor Oil each night for three nights and feed a warm mash of bran or ground oats into which has been mixed one teaspoonful each of Carbonate of Iron, Ginger and Sulphur to each four quarts of ground feed. Isolate affected birds and disinfect quarters thoroughly and often.

Rattles or Bronchitis

The chief symptom of this disease is a rattling in the throat from labored breating.

Give fowl a physic of Epsom Salts or a little pulverized Rhubarb and drop a drop of the Liquid Roup Cure, given in the first of this chapter, into the windpipe. Repeat this last treatment daily until cure is affected.

In some cases "Rattles" is a symptom of consumption. In such cases the fowl rapidly grows light in weight and there is no treatment that will bing satisfactory results.

Canker or Sore Throat

Small sores or ulcers appear on the throat walls in this disease.

Remove the cheesy substance from these sores and wash the raw surface underneath with Peroxide of Hydrogen, afterward applying powdered burnt alum or Sub-Sulphite of

Iron. Fowl should be given a physic and a few drops of Sub-Sulphite of Iron in the drinking water is valuable.

This disease spreads rapidly as the exudation from the sores is a virulent poison which contaminates soft feeds and drinking water and all feed and water vessels should be scalded daily.

Chicken Pox or Sore Head

This disease is very closely allied with Roup, in fact it is a result of aggravated cases of Roup. The nasal passages become clogged and the poisons thrown off cause scabby sores to appear on the head and many times the eyes are affected and some times destroyed.

The treatment is the same as for the advanced stages of Roup, (See under Roup, When Nasal Injections Fail) and anoint the sores with Carbolated Vaseline or apply a wash made as follows: 3 parts Grain Alcohol, 1 part pure water and all the tannin the mixture will dissolve. Be careful not to get this in the patient's eyes.

BOWEL TROUBLES

When the excrement secreted by the kidneys, which is normally pure white, appears yellow, look out for bowel trouble. Watch the dropping boards, it may save fowl and money.

Cholera

Genuine Cholera is the most dangerous of all poultry diseases as it will often destroy a whole flock in a few days.

Cholera is caused by a specific germ, peculiar to this disease and it should not be confounded with common Diarrhœa or Dysentery.

The symptoms are full crop and great thirst, high fever and a purple color of the comb and wattles, caused by the blood becoming thick and almost black in color. Fowl have a droopy appearance and the feathers stand out loosely from the body. The droppings are of a yellowish or greenish color and, in the last stages frothy.

The germ of Cholera is not spread through the air but through the soil, which is infected by the droppings. Disinfect the houses and runs with an application of a weak solution of Sulphuric Acid and water. Also use lime

liberally and if possible spade or plow up runs that have been inhabitated by infected fowl.

If the above treatment is carefully followed and quarters are kept clean the worst attack of Cholera upon a flock may be checked at once and soon cured.

White Diarrhoea

The causes of Diarrhœa are numerous, but exposure, eating mouldy or sour food and drinking impure water are the most common causes.

The special symptom of White Diarrhœa and that which identifies it from the other forms of this complaint is that the discharges are white. Any case of diarrhœa in chickens is serious enough but White Diarrhœa is considered by many well-informed poultrymen to be the greatest scourge of the poultry business, as millions of dollars worth of chicks are lost every year from this trouble. Many times 90% of a flock attacked by this disease die.

Bacteriologists tell us that the germ of White Diarrhœa belongs to the same group of bacteria as does the germ causing typhoid fever in man. It may be transmitted to chicks through infected food and water and by com-

ing in contact with diseased chicks; also it is many times transmitted from a diseased hen to the egg and thence to the chick. Such chicks are very liable to show signs of the disease in a few hours after hatching and, if not speedily treated, usually died in a few days at most.

This disease is very deadly and yields only to the best treatment but the following will be found to give very satisfactory results.

One-half grain each of Sugar of Lead, Pulverized Opium, Gum Capsicum to twelve small chicks and increasing with the size. This can be mixed with bread crumbs slightly moistened and made into pills or mixed with soft feed, use only a small quantity of feed in order that the chicks will eat it readily.

All well birds should be removed to new quarters and soil and infected quarters disinfected with a weak solution of Sulphuric Acid and water.

Diarrhoea

For the ordinary forms of Diarrhœa, a few drops of Paregoric, one drop to the smallest chick and increasing with the size, will be found a reliable cure.

Dysentery

Overfeeding is the cause of this trouble. The bowels, in tyring to do the work of a stagnant liver, greatly increase their action to throw off the offensive matter.

The chief symptom is frequent straining with cramps and even spasms. The urates are often streaked with blood.

Give the fowl a purgative to clear up the system. Epsom Salts, Castor Oil or Powdered Rhubarb will do the work. Afterwards for a few days, feed light feed such as oat meal or ground oats with shucks removed and wheat bran.

GENERAL POULTRY DISEASES

Scurvy

This trouble is caused by lack of green food and filthy quarters and is really a condition rather than a disease.

The comb is covered with a white scurf and the trouble sometimes extends to the head and neck, causing the feathers to fall off.

Change fowl to clean quarters and give a dose of Castor Oil or Epsom Salts. Feed green feeds and light mashes into which have

been mixed a small quantity of Sulphur and Carbonate of Iron.

Apply a good poultry ointment or carbolated vaseline.

Favus

This disease is said to be produced by a vegetable parasite and is called by some "Comb Disease."

The treatment given for scurvy will be found to be effective for Favus.

Gapes

The characteristic symptom of this disease is the gasping or suppressed coughing of the chick. Only comparative young chicks are affected and from this we draw the conclusion that the larger stock are strong enough to throw off the trouble without perceptible injury.

The disease is caused by a small red worm which lodges in the trachea or windpipe and, as they grow in size and numbers, they impede the breathing and cause the gasping sound. Thev range in size from mere specks to upward of an inch in length and sometimes a dozen or more are found in the windpipe of one chick, and altho a chick so affected is not constitutionally sick, yet, the continued and in-

creased impediment in breathing soon overcomes its strength and it dies.

The best method of treatment is to take a hen's wing feather and strip off the web, all except a small tip at the end. Dip this into a solution one-half Sweet Oil and one-half Turpentine and insert into the windpipe of the chick, run well down, twist and withdraw. You will probably get some of the worms on your feather and the others will be dislodged or killed and will be thrown off by the chick. One application will usually do the trick but you should watch your chicks and repeat if necessary.

One ounce of Creolin to a gallon of water makes a fine spray to use on ground where chicks with gapes have run. Also dust quarters with air slacked lime.

It Pays Every Poultryman to Spray Thoroughly and Often

Limberneck

Limberness or Limpness would be a better name for this diease as the whole body is as limp as the proverbial dish rag, when a fowl is attacked by this disease. In fact, this is the main symptom of the the disease altho it is attended by enlargement of the pupils of the

eves showing that the disease is due to poisoning.

The disease proper is ptomaine poisoning, caused by eating decayed animal or vegetable matter and the limberness is merely a svmptom of the disease. The poison affects the nerve system, paralyzing it and that in turn acts upon all the processes of the body, stagnating them and, if this condition is not relieved at once, the fowl dies.

The best treatment that I have ever used and one which I have never known to fail, if fowl was not so weak, from allowing disease to go unchecked, that the system was unable to respond to the treatment, is as follows: give fowl one-half teaspoonful of good whiskey in two teaspoonfuls of water to stimulate system. Give a piece of gum asafœtida the size of a small pea. Repeat this last treatment in 48 hours. The whiskey and water may be given every four hours if necessary to assist the action of the heart and keep the fowl from collapse.

Scaly or Scabby Legs

Rough, unsightly shanks in fowl are indicative of this disease, and filthy quarters are productive of it.

The mite causing scaly legs is a particularly annoying pest and very prevalent. It burrows under the natural scales on the legs and, by its irritation, causes an exudation of which the enlarged, scaly portion is formed. The disease is spread usually by well fowl roosting with fowl having the trouble as the mites pass from one to the other by means of the roosts.

Spray all roosts and nests with kerosene oil or a solution 25 parts water to one part carbolic acid.

Anoint legs of affected fowl with an ointment made from carbolated vaseline to which has been added one part Creolin to ten parts vaseline. It is a good plan to bandage legs after applying ointment, to keep dirt from sticking to them and the ointment from getting wiped off. Apply daily until a cure is affected.

Bumble Foot

In bumble foot, the ball of the foot becomes enlarged and inflamed and a growth similar to a corn appears on the sole of the foot.

This trouble is usually caused by roosts being too high without sufficient litter on the floors and by running on hard, dry ground in

small runs. At the first signs of the trouble, if the roosts are lowered and plenty of litter placed on the floors, it will usually right itself.

After the foot has become considerably inflamed, it is best to apply a flax-seed poultice to draw the swelling to a head, when it should be lanced and the pus removed. Wash out the wound with a weak solution of carbolic acid and water and then with Peroxide of Hydrogen. After this wash with warm water and apply carbolated vaseline and bandage the foot to keep out the dirt. Wash each day with castile soap and warm water, afterward with Peroxide of Hydrogen and repeat ointment, bandaged on, until cured.

Corns

With a sharp knife, remove the center of the corn which will leave a small hole in the foot; into this hole, force a piece of blue vitrol the size of a wheat kernel and bandage the foot. In three days remove the bandage and you will find that the vitrol has killed all the corn tissue and that it has turned black and can be easily pealed out and removed. If any of this corn tissue is still alive, you can repeat the vitrol treatment but, if not, apply plenty of good ointment and bandage the foot.

Change this application every 2 days until the foot is well again.

Crop Bound

The symptoms of Crop Bound are so obvious that it is not necessary to mention them here. The distended crop is the only essential symptom to recognize the disease. Should you have a fowl with a very full crop and that shows signs of droopiness and lack of life, confine in a coop with no food for 24 hours and, if the crop is still full, you have a well defined case of Crop Bound.

There are three general causes of Crop Bound in fowl and three recognized treatments.

The cause which is least liable to bring serious results is that of the fowl gorging until the crop is so full that the muscles of the lining are unable to contract sufficiently to force the food through the opening into the gizzard. This may be readily overcome by giving the fowl a liberal dose of Castor Oil, to soften the mass, and then by working the crop with the hands you can assist in forcing the food through the opening into the gizzard and so relieve the situation. Or you can remove the contents by one of the methods given

later but it will hardly be necessary to open the crop in such a case as this.

A more serious cause of crop bound comes from the fowl swallowing tough grass, hay or straw, feathers or some other substance which forms into a mass and clogs the passage from the crop to the gizzard. It is sometimes possible to remove this cause with the oil and massage treatment but not usually. The best treatment that I have ever used for a case of this kind is as follows: fill a fountain syringe full of luke warm water, having the shut off in the tube closed. Hang bag well up on the wall and, with the fowl near the floor, gently force the nozzle of the syringe down the throat and into the crop. When it is well into the lower side of the crop, open the shut off and allow the water to flow. The crop will become distended and, by working rapidly with the hand and removing the tube from the throat, you can force out a quantity of the food which has accumulated. Repeat this until you have removed all, or practically all, of the food and probably by this time you have dislodged the obstruction causing the trouble. Give your fowl a tablespoonful of Castor Oil and place in a warm coop until morning. If the crop is not entirely empty the next morning,

you may be sure that you have not removed the obstruction and you must do the work over again, endeavoring to get as much pressure as possible on the crop, with the water and the massage, to drive the passage clear. If you fail in this the only course left is to open the crop.

Opening the crop is a delicate operation and, if you have never performed the operation or seen it performed by a man who understood the proper method, the chances are that you will lose your bird but the experience may be valuable to you in your next case of the kind. Anyway the fowl will die unless you do make an effort and die a lingering death which is much worse than to die from the operation. The proper and humane method is to chloroform your fowl and have your assistant keep it chloroformed.

After you have your fowl under the influence of the drug, pluck the feathers in a straight line down the crop. With a sharp knife cut a gash in the outer skin about an inch long, slide the skin around, so as not to have the gashes come opposite, and cut a gash of the same length in the crop wall. Through these openings you can remove any and all substances in the crop and passage to the

gizzard or force any obstruction into the gizzard. Wash out the crop with a weak solution of carbolic acid and water after which sew up each incision with white silk thread. Place the fowl in a clean, dry coop and give a little Olive oil. Feed sparingly on soft feed for a few days and give buttermilk to drink.

The worst form of Crop Bound is caused by stricture of the passage from the crop to the gizzard. This is sometimes caused by an injury by some hard, sharp substance passing through this small passage and the healing process partly closing it. At other times it is caused by a thickening of the walls of the passage. If this stricture becomes complete there is nothing that you can do to assist the fowl and, if you could be sure that such was the real trouble, it would be a great kindness to kill the fowl so afflicted as it means only a lingering death. Where the passage is only partly closed but the crop contains some substance that will not pass through the opening, you should remove the contents of the crop and give the fowl soft food only.

Leg Weakness

A fowl with this trouble squats on the ground frequently and staggers in its walk.

The cause is feeding too much fat forming food and too little muscle and bone making food. It is also caused by fowl being on dry floors for long periods and in chicks from continued heat.

The best plan is to place affected fowl on the ground and feed light feeds, like oats, bran and clover with liberal rations of cut green vegetable matter. Proper care and feed will usually overcome this trouble without drugs. In case the fowl does not improve in a few days give a soft mash into which has been mixed a teaspoonful of Carbonate of Iron to four quarts of ground feed.

Worms

Loss of appetite and a shabby appearance are signs of worms in a fowl.

Give a tablespoonful of Castor Oil into which has been dropped ten drops of Spirits of Turpentine. Repeat the second day if necessary.

Apoplexy

This disease is usually caused by overfeeding but sometimes comes from fright. Fowl act dizzy and run around unsteadily.

Give a tablespoonful of Castor Oil and feed on light diet for a few days. If fowl does

not improve, bleed from vein under wing and give five drops of Belladonna to a quart of drinking water.

Paralysis

Paralysis comes from much the same cause, as does Apoplexy and responds to the same treatment. It differs in that fowl usually loses the use of limbs and lies helpless.

Rheumatism

Caused by exposure to dampness and colds, this trouble usually yields to proper care and treatment. The symptoms are stiffness and swelling of the joints. Remove to dry, comfortable quarters and feed plenty of green food and light mashes, adding a teaspoonful each of red pepper and mustard to each four quarts of ground feed. Avoid corn and meat feeds.

Egg Bound

The symptoms of this disease are an uneasiness and frequent going on the nest without laying. Over-fat hens are so troubled often.

Give a light diet with plenty of green stuff.

To relieve hen, dip finger in sweet oil and insert into oviaduct. If the egg is too large to be removed the only remedy is to break it and move the parts.

Avoid corn feeds, meat and stimulating diet of all kinds.

Notes on Pests and Conditions which can hardly be termed Disease

Feather Eating, while not a disease, is a habit which is worse than many of the diseases as one feather eating hen will spoil the looks of a whole flock. There is little doubt but that this habit is caused from the hen craving animal food and salt. A good plan is to hang a piece of salt pork in the pen where the fowl can pick at it. This will not bring about a cure for hens already having the habit, but will satisfy the craving of others and so prevent their taking it up.

To cure, take a little fresh butter and rub into it as much powdered Aloes as possible. Rub this on the fowl that have been feather eaten, where the feathers have been removed and on nearby feathers. This will do two things. It will stop the feather puller from working on these fowl and it will promote the growth of new feathers.

Mites develope with marvelous rapidity in hot weather. Kerosene and Kerosene Emulsion, to which has been added a little crude carbolic acid, if used weekly and thoroughly in the poultry houses, will keep them free from these pests.

The dust bath is one of the best methods of ridding fowl from lice. The dust fills up the breathing holes in the skin and so kills lice.

China eggs thrown in the litter so that hens become used to seeing them about are a fine remedy for egg eating.

Hens that are over-fed on fat forming foods are liable to drop feathers. Feed light rations and plenty of green stuff to remedy this trouble.

To kill rats, place corn meal in handy dishes and, after rats get to eating it, mix in a little arsenic. You will have no bad odors as arsenic is a preservative.

Vaseline is fine for frosted combs and wattles.

CONCLUSION

I have endeavored to make this work perfectly plain and easily understood but, if there is any part of it which looks dark to you, I shall be pleased to have you write me regarding it and I will endeavor to dispel the shadows.

More than this, I shall be pleased to make suggestions and aid you in any way possible in your breeding, cocking or treatment of fowl. While my methods are not infallible yet I have had years of experience along these lines and you are welcome to any knowledge which I may have gained in this time.